AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for producing a thin film comprising:

disposing a precursor solution onto a substrate to form a precursor film, the precursor solution comprising:

precursor components to a rare earth-alkaline earth metal-transition metal oxide comprising a salt of a rare earth element, a salt of an alkaline earth metal, and a salt of a transition metal in one or more solvents, wherein at least one of the salts is a fluoride-containing salt, and

a dopant component comprising a dopant metal, wherein the dopant metal partially replaces one or more of the rare earth ~~and alkaline earth metal~~ of the rare-earth/alkaline-earth-metal/transition metal oxide in the precursor solution; ~~and~~

treating the precursor film to form an intermediate metal oxyfluoride film including the rare earth, the alkaline earth metal, the transition metal and the dopant metal of the precursor solution, and

heating the intermediate film to form an oxide superconductor that contains one or more defects that serve as flux pinning centers, wherein the oxide superconductor comprises the dopant metal~~, and said oxide superconductor contains one or more defects that serve as pinning centers~~.

2. (Original) The method of claim 1, wherein the dopant component comprises sufficient dopant metal to replace up to 50 atomic percent of one or more of the rare earth and alkaline earth metal of the rare-earth/alkaline-earth-metal/transition metal oxide.

3. (Original) The method of claim 1, wherein the dopant component comprises sufficient dopant metal to replace about 10 atomic % to about 30 atomic % of one or more rare earth and alkaline earth metal of the rare earth/alkaline earth and metal/transition metal oxide.

4. (Original) The method of claim 1, wherein the dopant component comprises sufficient dopant metal to replace about 1 atomic % to about 10 atomic % of one or more rare earth and alkaline earth metal of the rare earth/alkaline earth and metal/transition metal oxide.

5. (Original) The method of claim 1, wherein the dopant component comprises sufficient dopant metal to replace less than about 1 atomic % of one or more rare earth and alkaline earth metal of the rare earth/alkaline earth and metal/transition metal oxide.

6. (Original) The method of claim 1, wherein treating the precursor film comprises comprising heating the film at a temperature in the range of about 190°C to about 650°C to decompose the precursor and dopant components of the precursor solution.

7. (Original) The method of claim 1, wherein treating the precursor film comprises comprising heating the film at a temperature in the range of about 190°C to about 400°C to decompose the precursor and dopant components of the precursor solution.

8. (Canceled)

9. (Previously presented) The method of claim 1, wherein the oxide superconductor comprises sufficient dopant metal to replace up to 50 atomic percent of one or more of the rare earth and alkaline earth metal of the oxide superconductor.

10. (Original) The method of claim 6, wherein heating the intermediate film comprises heating at a temperature in the range of about 700°C to about 825°C in a flowing gas environment having a total pressure of about 0.1 Torr to about 760 Torr and containing about 0.09 Torr to about 50 Torr oxygen and about 0.01 Torr to about 150 Torr water vapor and an inert gas with a pressure of about 0 Torr to about 750 Torr.

11. (Original) The method of claim 6, wherein heating the intermediate film comprises heating at a temperature in the range of about 700°C to about 825°C in a flowing gas environment having a total pressure of about 0.15 Torr to about 5 Torr and containing about 0.1 Torr to about 1 Torr oxygen and about 0.05 Torr to about 4 Torr water vapor.

12. (Original) The method of claim 10, wherein the film is heated to the heating temperature at a temperature ramp of about greater than 25°C per minute.

13. (Original) The method of claim 10, wherein the film is heated to the heating temperature at a temperature ramp of about greater than 100°C per minute.

14. (Original) The method of claim 10, wherein the film is heated to the heating temperature at a temperature ramp of about greater than 200°C per minute.

15. (Original) The method of claim 11, wherein the film is heated to the heating temperature at a temperature ramp of about greater than 25°C per minute.

16. (Original) The method of claim 11, wherein the film is heated to the heating temperature at a temperature ramp of about greater than 100°C per minute.

17. (Original) The method of claim 11, wherein the film is heated to the heating temperature at a temperature ramp of about greater than 200°C per minute.

18. (Original) The method of claim 6, wherein:

the oxide superconductor is disposed on a surface of a substrate, the substrate being biaxially oriented;

the oxide superconductor is biaxially oriented;

the oxide superconductor has a c-axis orientation that is substantially constant across its width, the c-axis orientation of the oxide superconductor being substantially perpendicular to the surface of the substrate.

19.-69. (Canceled)

70. (Currently Amended) The method of ~~claim 2,~~ claim 1, wherein the dopant comprises holmium.

71. (New): The method of claim 1, wherein the dopant component further comprises a second dopant metal which partially replaces one or more of the alkaline earth metal of the rare-earth/alkaline-earth-metal/transition metal oxide in the precursor solution.